

U.S. ARMY UMATILLA CHEMICAL DEPOT

2007

MOVING FORWARD TOGETHER





IT'S OUR NATURE TO THINK SAFETY FIRST

WE have much to hold dear in the Columbia Basin. Skies that are bright, blue and clean. A world-class economy in agriculture and energy. Our families, friends and neighbors. Keeping people safe and protecting the environment is not only a commitment, it's our way of life. For more about this historic project to dispose of Umatilla's chemical weapons, call the Umatilla Chemical Disposal Outreach Office, (541) 564-9339, or visit 190 E. Main St., Hermiston.



U.S. ARMY CHEMICAL MATERIALS AGENCY
WWW.CMA.ARMY.MIL

U.S. ARMY UMATILLA CHEMICAL DEPOT
Hermiston, OR 97838-9544



DEPOT ACTIVITIES

SECURITY

A Department of the Army civilian force protects chemical weapons stored in fortified compounds within depot boundaries.

MOBILE MONITORING LABORATORIES

Specially equipped vehicles called Real Time Analytical Platforms move to every location where work is conducted. The vehicles monitor air inside and outside storage igloos to check for chemical agent.

MAINTENANCE

Frequent inspections check for leaking munitions, which can be found while the chemical agent is still in vapor form, barely

detectable in the air. Such munitions are encased inside larger containers called “overpacks.”

EMERGENCY RESPONSE

A 24-hour Emergency Operations Center monitors all activities and weather conditions that could create a potential hazard to the nearby community if an accident were to occur. Regularly scheduled exercises ensure response procedures and personnel are prepared for any emergency.

TREATY COMPLIANCE

Under the Chemical Weapons Convention treaty, the Umatilla Chemical

Depot must declare the number, nature and location of its chemical weapons and related facilities. To verify compliance, international inspectors have been making site visits since 1997.

ENVIRONMENTAL PROTECTION

Staff members oversee environmental permitting and protection of the depot’s natural resources.

UMATILLA CHEMICAL DEPOT - BY THE NUMBERS

Size in acres	19,729
Number of structures	1,383, including 1,001 igloos
Miles of paved road	194
Miles of railroad track	51
Size of igloos	40, 60 or 80 feet long 26 feet wide 13 feet high
Original chemical agent tonnage.....	3,717 tons
Umatilla chemical agent tonnage by percentage	HD (mustard), 63% GB (sarin), 27% VX, 10%
Number of depot and disposal plant employees.....	1,250
Number of leakers since 1984	190
Ratio of leakers in original stockpile	Fewer than 1 in 1,000

FREQUENTLY ASKED QUESTIONS ABOUT THE UMATILLA CHEMICAL DEPOT

WHY IS THE ARMY DESTROYING UMATILLA'S CHEMICAL WEAPONS?

The need for the national stockpile no longer exists. Both the U.S. Congress and an international treaty require the weapons be destroyed.

HOW LONG WILL DISPOSAL OPERATIONS TAKE?

Disposal operations began in September 2004 and are scheduled to end about 2012. Facility closure will take about another three years.

WILL CHEMICAL AGENT BE RELEASED FROM THE STACK?

No, as organic compounds, chemical agents are destroyed in incinerators by extremely high temperatures. A pollution control system that cleans the incinerator gases, followed by a carbon filter system, helps ensure stack emissions meet clean air regulations.

WHAT WASTE PRODUCTS ARE CREATED?

Similar to many industrial processes, chemical weapons disposal produces waste byproducts, such as scrap metal, brine solution and ash. Some waste will be destroyed in an incinerator within the facility. Other (non-chemical agent) contaminated waste will be shipped to an approved hazardous waste landfill for disposal.

WHAT ARE "LEAKERS" AND SHOULD I BE WORRIED?

Leakers are munitions leaking very small amounts of chemical agent or vapor while in their storage bunkers, also known as igloos. Because leakers are found in the early stages, they do not pose a threat to people or nature. However, to ensure their continued safe storage, they are overpacked in larger containers, placed in an igloo with similar items and monitored daily.

IS MOVING CHEMICAL WEAPONS FROM THEIR IGLOOS DANGEROUS?

Special design features, strong packing materials and strict handling procedures help ensure safe movement of chemical weapons. Further, the munitions are placed in steel containers for even more protection from leaks, fire and impact while being moved to and stored in the disposal plant.

WILL THE UMATILLA CHEMICAL DEPOT CLOSE?

Since 1988, when Umatilla was first placed on a federal Base Realignment and Closure list, the plan has been to close the depot once chemical weapons are destroyed and all waste from the disposal facility processed. Future closure does not affect the current mission to safely store and destroy chemical weapons.

WHAT IS THE DISPOSAL FACILITY'S FUTURE USE?

The weapons disposal building must be demolished once disposal operations are complete. However, the state permit allows for the project's other facilities to be saved if the community Local Reuse Authority identifies a use for any of the structures and the Umatilla Chemical Agent Disposal Facility applies for a permit modification. The Local Reuse Authority—which includes representatives from local counties, ports and tribes—will eventually determine the entire depot's future.

DOES THE DEPOT HAVE ADEQUATE SECURITY?

Safety and security will always be the Army's top priority. This is even more true since the Sept. 11 terrorist attacks. The depot has been at heightened security since then and will remain so for the foreseeable future.

HOW DO I INQUIRE ABOUT JOBS?

For hiring information, call the Umatilla Chemical Depot at (541) 564-5205, Washington Group International at (541) 564-7196 (www.wgint.com) or Southwest Research Institute at (541) 564-7159 (www.swri.org).





Laura Harriman, with Patty O'Brien to her left, guides a pallet of M55 rockets into an On-Site Container, which provides extra protection when moving chemical weapons.

MISSION: MOVING CHEMICAL WEAPONS

Anthony Ficenec's work station sits 120 feet above the ground, just beneath the top of the Umatilla Chemical Agent Disposal Facility emissions stack.

Wind brushes the powdery snow into small piles around the small, rectangular building that surrounds the stack, and at the very top of the stack, the U.S. flag snaps in the breeze. Inside the stackhouse, the Pilot Rock native works to analyze emissions at the last

possible moment before they head to the atmosphere.

Across the facility, in the Brine Reduction Area, Russell Midili supervises the drying of a salty solution or "brine" used to scrub emissions clean of contaminants before being released into the environment.

"Everything is scrubbed from start to finish," Midili says of the brine processing operations.

Next to the disposal facility, where chemical weapons are stored while awaiting disposal, Laura Harriman works as a Umatilla Chemical Depot explosives operator and toxic materials handler.

Crew members train for hundreds of hours and undergo an extensive background check before being certified to handle chemical weapons. They are cross-trained for a long list of jobs, such as safely entering a storage bunker



"WHEN IT GETS DOWN TO THE JOB, WE ARE ALL THERE FOR EACH OTHER. WE DEPEND ON EACH OTHER FOR OUR LIVES."

LAURA HARRIMAN

MISSION: MOVING CHEMICAL WEAPONS (CONTINUED)

ON-SITE CONTAINERS—BY THE NUMBERS

Length.....	142 inches
Height.....	102 inches
Empty weight	18,500 pounds
Maximum capacity of agents & munitions	7,000 pounds
Construction	Three layers: stainless steel, polyurethane foam, ceramic-fiber insulation blankets
Holds	40, 60 or 80 feet long
Testing	Subjected to jet fuel fire, dropped on both ends, dropped onto metal spike, subjected to 50,000-lb. compressive load for 24 hours
Cost	\$175,000 per container

to find and containerize “leakers” or moving chemical weapons from storage to the disposal plant.

Raised in a family of ranchers and miners, Harriman previously worked in a gold and silver mine outside of Jordan Valley, Ore., as a heavy equipment operator and driller. She worked with explosives at times.

Later, she and her husband relocated to work at the Umatilla prison, where she taught cognitive skills to inmates. From there, she gravitated to the depot.

“I like having some excitement—I like extreme jobs,” she says.

In a typical operation, such as loading rockets

for transport to the plant, Harriman carefully steers a forklift toward the transport container.

The rockets glide into the container. The crew seals the door, starts up the truck and heads to the disposal facility. The process is smooth, uneventful and done in minutes, making it easy to forget the remarkable cargo they are carrying.

Although rockets include explosive components and about 10 pounds of liquid nerve agent, they are designed to be safely moved by all modes of transportation. Safety features were incorporated into the design of the munitions to prevent accidental ignition. For

example, rockets are stored in heavy shipping and firing tubes and secured with steel bands on wooden pallets.

Finally, to provide extra protection for moving chemical weapons, the Army uses “On-Site Containers” that are resistant to impacts, punctures, crushing and fire. Umatilla uses 48 such containers.

Designed by the Sandia National Laboratories in New Mexico and made in Tonawanda, N.Y., the containers have safely completed thousands of trips at various chemical weapons sites since first introduced at Tooele, Utah, in 1996.

Freightliner trucks are used to tow the containers

On-Site Containers, with chemical weapons inside, are placed onto conveyors inside the facility to begin the disposal process.



to the plant's Container Handling Building, where an overhead crane removes them from the trailer. Ammunition is moved only during the day, even though the disposal plant operates around the clock.

"We are completely protected and our equipment is the best," Harriman says.

Bart Marsters, a native of northern California and southern Oregon, has worked for the Department of Defense since 1983, and has been at the depot for the past half-dozen years.

To understand the nature of the job is to know "it's not production, it's quality," he says.

"If we are working on a leaker, we can't go in there blindly. It takes meticulous planning; we have to make sure we get it right the first time. You walk, not run, to make sure you get everything done that needs to be done."

Patty O'Bleness was raised on a small farm in western Washington. As

a production lead at the Lamb-Weston potato-processing factory in Boardman, she worked with industrial chemicals and on the safety committee. Her impressions of the depot job? The supervisors are extremely knowledgeable, the training is thorough and continuous, and the work is for the public's benefit.

"It's a good feeling to know our community will be so much better off once we get all these weapons destroyed," she says.

Depot workers shy away from describing themselves as one big family, so they put it this way:

"We rely on each other, a big circle that keeps on turning," Marsters says. "My kids have the feeling that Dad works with people who make sure Dad gets home."

Adds Harriman, "When it gets down to the job, we are all there for each other. We depend on each other for our lives."

SUITING UP FOR SAFETY

The Demilitarization Protective Ensemble is a heat-sealed, one-time use suit weighing about 50 pounds with supporting equipment. These airtight suits provide the highest level of protection for workers accessing areas of the Umatilla Chemical Agent Disposal Facility where chemical weapons are disassembled and destroyed.

COMMUNICATIONS

A radio transmitter provides contact with an emergency backup crew, the control room and other support staff.

GLOVES

Three layers are used, with thick Army-issued butyl-rubber gloves as the top layer.

LIFE SUPPORT

Primary supply comes through a hose connection to purified air; a self-contained breathing apparatus provides 8 to 10 minutes of escape air. A heart monitor around the chest checks for signs of distress.

SECOND SKIN

Specially blended materials help seal out harmful chemicals.

FOOTWEAR

One-piece suit slips into butyl-rubber boots that are taped shut.



DETECTING CHEMICALS IN PARTS PER TRILLION

To check for chemical agents, "near real-time" monitors constantly sniff the air and give a reading within minutes. Other types of monitors collect samples over a longer time period to help confirm near real-time monitor readings.

More than 300 chemical agent monitors are placed in and around the Umatilla

Chemical Agent Disposal Facility and in the exhaust stacks, with about 60,000 air samples taken daily.

The Automatic Continuous Air Monitoring System, shown at right, is the primary monitor in the Army's chemical weapons disposal program. For the nerve agent GB, each monitor takes an air sample

every 3 minutes, 24 hours a day and sounds an alert if the chemical agent begins to approach 17 parts per trillion for agent GB, a level considered safe for workers. Monitoring settings for VX, the most potent chemical warfare agent stored at Umatilla, are approximately 20 times more sensitive than for GB.



UMATILLA CHEMICAL DEPOT TIMELINE

1940

- The Army selects Hermiston for an ammunition depot because it is safe from sea attacks but close to rail lines and shipping ports.



1941

- A Boise, Idaho, company awarded \$10 million in contracts to build storage igloos.
- The *Portland Oregon Journal* features Hermiston as "10,000 extra people in a town of 800 dazed by a war boom."
- 24 igloos are poured in a single day, a world record.
- 20,000 bombs arrive from Ogden, Utah.

1943

- Depot employs 2,000 workers during World War II; women represent 27 percent of work force.

1944

- Igloo storing conventional bombs explodes. Six workers die; windows shattered in Hermiston.



1952

- From 1,000 to 1,500 workers employed since beginning of Korean War.
- Depot handles a monthly average of 33,856 tons of ammo and general supplies.



1953

- Depot workers refurbish WWII ammo for use in Korea.
- City of Ordnance houses 300 people.

1962

- Umatilla Ordnance Depot changes name to Umatilla Army Depot.
- Umatilla receives its first chemical weapons when VX-filled rockets are shipped from Indiana. Shipments continue until 1969.



1968

- Depot ships 100,000 tons of munitions by rail and truck to support troops during Vietnam War.

1969

- Depot employs 840 with \$7 million annual payroll, making it Umatilla County's biggest industry.
- President Richard Nixon calls unilateral halt to chemical weapons production.
- In December, Army announces chemical weapons stored in Okinawa will be relocated to Umatilla. Controversy erupts when Oregon Gov. Tom McCall and others fight proposed shipment.





1970

- *Life* magazine and *The New York Times* feature Umatilla depot controversy.
- Despite attempts by Hermiston residents to support the shipments, the White House sends Okinawa's munitions elsewhere.

1984

- Army unveils plan to incinerate chemical weapons at Umatilla and other depots.
- The mobile Drill and Transfer System dismantles "leaking" chemical weapons at the Umatilla depot.

1988

- Federal Base Realignment and Closure Commission selects Umatilla depot for realignment, leaving on-site destruction of chemical weapons as its final mission.

1991

- Depot ships 19,371 tons of conventional ammunition during Desert Storm.

1994

- Army ships the last of its conventional ammunition from Umatilla to other depots, leaving 90 percent of igloos empty.

1996

- Umatilla Army Depot changes name to Umatilla Chemical Depot.

1997

- State grants Army permission to build the Umatilla Chemical Agent Disposal Facility.
- Army begins shipping Umatilla's "binary" chemical weapons to Nevada for destruction and recycling.
- CBS's "Evening News" broadcasts segment on Umatilla depot.

1998

- CBS's "60 Minutes" broadcasts segment on Umatilla emergency preparedness.

2001

- Construction finished on Umatilla Chemical Agent Disposal Facility at a cost of \$395 million.

2002

- Mustard agent moved to more secure storage.
- CBS's "60 Minutes II" broadcasts segment on Umatilla Chemical Depot.

2004

- First M55 rocket incinerated Sept. 8.

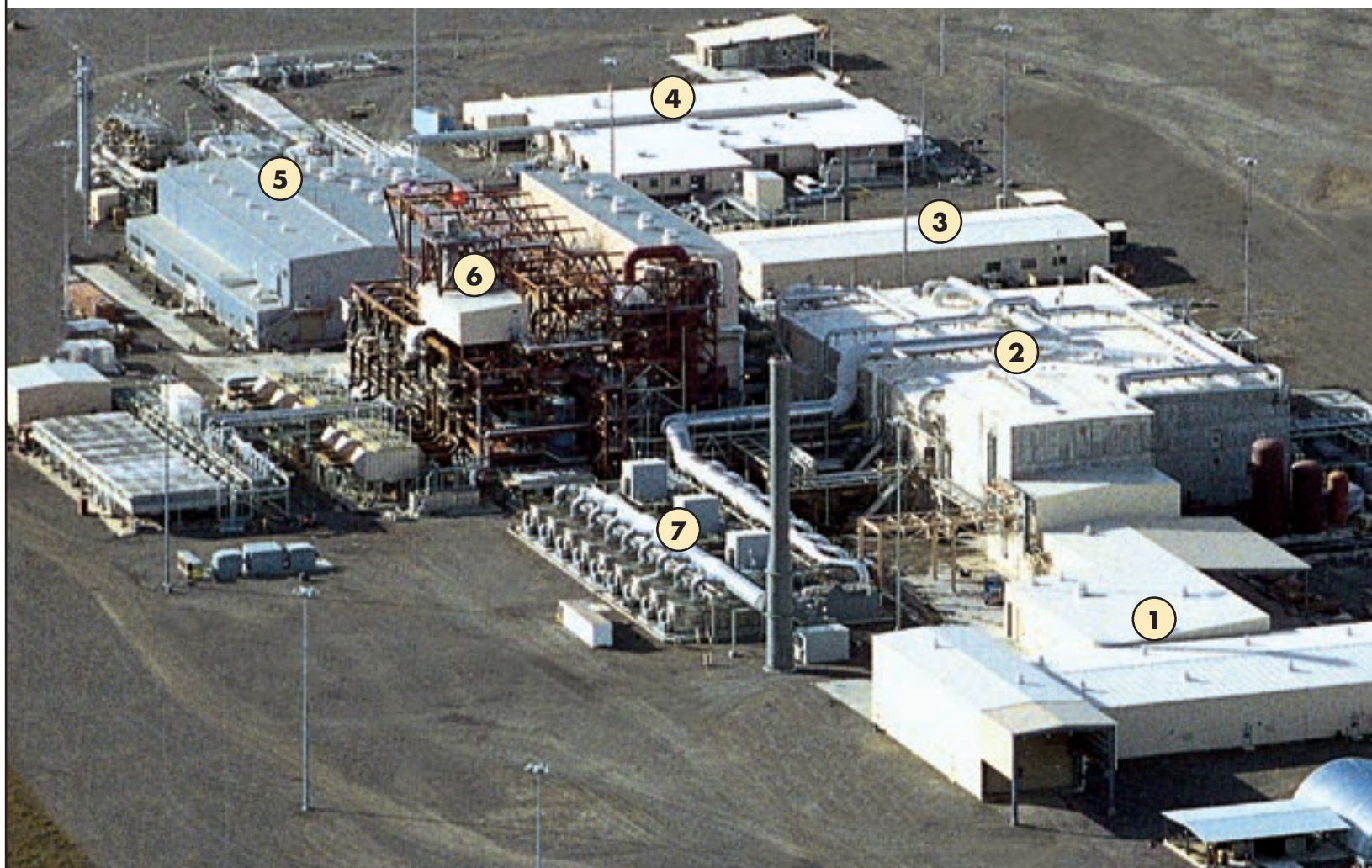
2005

- Federal Base Realignment and Closure Commission recommends Umatilla depot for base closure after chemical weapons destroyed.

2006

- Umatilla disposal facility completes elimination of GB rockets and bombs.

ROCKET SCIENCE: A CHEMICAL WEAPON'S



Construction photo, February 2001

UMATILLA CHEMICAL AGENT DISPOSAL FACILITY



1 CONTAINER HANDLING BUILDING
Receives and stores chemical weapons while awaiting processing.

2 MUNITIONS DEMILITARIZATION BUILDING
Dismantles and incinerates chemical weapons. Control room operators remotely manage the disposal process using computers and video monitoring.

3 LABORATORY
Monitors for chemical agent, with thousands of air samples taken daily in and around the plant.

4 PERSONNEL & MAINTENANCE BUILDING
Includes worker services, medical clinic and treaty compliance.

5 PROCESS UTILITY BUILDING
Treats and checks waste byproducts before shipment to a permitted hazardous waste landfill.

6 POLLUTION ABATEMENT SYSTEM
Cools and cleans incinerator gases to ensure they meet clean air regulations, with a final pass through carbon filters.

7 PLANT AIR FILTER
Filters facility air. A ventilation system and carbon filters ensure no chemical agent inside the plant is released into the environment.

FOR A RECORDED UPDATE OF DAILY OPERATIONS, CALL (888) 866-5928.

PATH TO DISPOSAL

UMATILLA'S INCINERATORS



THE DEACTIVATION FURNACE SYSTEM Solid energetic materials and any remaining chemical agent in the rocket pieces and land mines are destroyed and decontaminated in the Deactivation Furnace System. This system includes a primary chamber operating at 1050°F and a secondary chamber operating at 2000°F.



THE LIQUID INCINERATOR Liquid chemical agents and decontaminating solutions are destroyed in the Liquid Incinerator. This system includes a primary chamber operating at 2700°F and secondary chamber operating at 2000°F.



THE METAL PARTS FURNACE Solid metal parts, such as land mine over-pack pails and bulk/ton containers, and plant operations and maintenance waste, such as personal protective equipment, are destroyed and decontaminated in the Metal Parts Furnace. This system includes a primary chamber operating at 1600°F and a secondary chamber operating at 2000°F.

UMATILLA'S CHEMICAL AGENTS				
AGENT	DEVELOPED	APPEARANCE	RATE OF ACTION	PHYSICAL EFFECT
GB (SARIN)	Nerve agent developed in 1938 by Germans doing pesticide research	Clear to straw-colored liquid that spreads as vapor or droplets	Very rapid; seconds to minutes	Inhibits the enzyme acetylcholinesterase, causing muscle groups to contract uncontrollably
VX	Nerve agent developed in 1950s in Britain; more potent than sarin	Oily liquid that evaporates more slowly than sarin	Very rapid; seconds to minutes	Inhibits the enzyme acetylcholinesterase, causing muscle groups to contract uncontrollably
HD (MUSTARD)	Blister agent developed in 1822 by Belgian scientist	Consistency similar to motor oil; smells of mustard or garlic	Delayed; hours	Blisters skin, eyes, lungs

UMATILLA'S CHEMICAL MUNITIONS

M55 ROCKET
Shot from a launching tube
Agent weight: 9-10 lbs.



155MM ARTILLERY SHELL
Shot from a howitzer
Agent weight: 6-7 lbs.



8-INCH ARTILLERY SHELL
Shot from a howitzer
Agent weight: 14-16 lbs.



LAND MINE
Buried in the ground
Agent weight: 10 lbs.

500-POUND BOMB
Dropped from a plane
Agent weight: 108 lbs.



750-POUND BOMB
Dropped from a plane
Agent weight: 220 lbs.



TON CONTAINER
Used for bulk storage
Agent weight: 1,500-1,700 lbs.



SPRAY TANK
Attached to a plane
Agent weight: 1,356 lbs.

DISPOSAL: A WORLDWIDE MOVEMENT

INSPECTORS LEND INTERNATIONAL FLAVOR TO UMATILLA PROJECT

Up to 10 international inspectors will be on site for the life of the Umatilla Chemical Agent Disposal Facility.

Inspectors can be from any of the 181 nations that have ratified the international Chemical Weapons Convention

treaty. Each inspector stays at Umatilla for six weeks, with half the team rotating out every three weeks.

All inspectors speak English, have technical backgrounds and are employed by the Organisation for the Prohibition of Chemical Weapons. Based in The Hague, Netherlands, the organization verifies execution of the Chemical Weapons Convention treaty, by which ratifying nations agree not to develop, produce, acquire, retain, stockpile, transfer or use chemical weapons. Under the original treaty terms, weapons were to be

destroyed and production facilities dismantled over a 10-year timeline that began in April 1997. Under the new treaty terms, the international organization established April 2012 as the date when the U.S. must destroy all its chemical weapons.

Inspectors live in the Hermiston area while on their mission to verify chemical agent destruction and are escorted by U.S. Defense Threat Reduction Agency employees.

Under the treaty, countries are required to declare the number, nature and

location of chemical weapons and related facilities. To verify compliance, international inspectors have been making site visits around the United States since the treaty went into force, with the first visit to Umatilla in 1997.



International inspectors work closely with Umatilla staff to ensure that terms of the Convention Weapons Convention treaty are properly implemented.

ON THE WEB

U.S. Defense Threat Reduction Agency
www.dtra.mil

Organisation for the Prohibition of Chemical Weapons
www.opcw.org

CITIZENS' ADVISORY COMMISSION

Oregon's governor created the Umatilla Chemical Demilitarization Citizens' Advisory Commission in 1994 to give citizens an independent voice on matters relating to chemical weapons—storage, disposal and emergency preparedness.

Meetings begin at 7 p.m. the third Thursday of each month at Good Shepherd Medical Center in Hermiston. Typically, the meetings include updates from Umatilla Chemical Depot, Umatilla Chemical Agent Disposal Facility and emergency preparedness managers.

To be placed on the commission's mailing list for meeting notices,

call (541) 564-9309 or e-mail Laura Morgan at lauramorga@gmail.com.

Commissioners include Chairman Robert Flournoy of Irrigon, Jeff Wenholz of Irrigon, Robert Severson of Hermiston, Kathryn O'Meara-Shaw of Hermiston and Donna Raines of Kennewick.

Chris Brown, state program manager for the Chemical Stockpile Emergency Preparedness Program, and Rich Duval, the Oregon Department of Environment Quality chemical weapons disposal program administrator, also serve on the commission.



Don Barclay, Army site project manager for the Umatilla Chemical Agent Disposal Facility, discusses rocket disposal with Commissioners Robert Flournoy and Donna Raines.

OVERSIGHT AGENCIES

THE FOLLOWING AGENCIES AND GROUPS PLAY AN IMPORTANT ROLE IN CHEMICAL WEAPONS STORAGE AND DISPOSAL ACTIVITIES

- **OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY'S** Chemical

Demilitarization Program is based in Hermiston, Ore. This office includes an administrator, hazardous waste compliance and permitting specialists, engineers and an administrative support staff member. Along with the Oregon Environmental Quality Commission, the agency's sole responsibility is to oversee the safe storage of chemical weapons at the Umatilla Chemical Depot and the safe and timely destruction of chemical weapons at the disposal facility. That role will continue until all chemical weapons have been destroyed, all secondary waste processed and the facility safely closed and dismantled. For more information, call (541) 567-8297. www.deq.state.or.us/umatilla/cdp.htm

- **CONGRESS** provides oversight for chemical weapons storage, disposal and emergency preparedness under several U.S. House and Senate committees. In addition, studies conducted by the Government Accountability Office for Congress are

available online. Type in the key words "chemical agent disposal" to retrieve reports. www.gao.gov

- **ENVIRONMENTAL PROTECTION AGENCY** provides oversight on all environmental aspects of the chemical agent disposal program. www.epa.gov
- **CENTERS FOR DISEASE CONTROL AND PREVENTION** receives and reviews all chemical agent monitoring data, reviews all proposed weapons disposal operations and

certifies public and worker health and welfare. www.cdc.gov

An article on chemical agent incinerator emissions can be found online: www.cdc.gov/nceh/demil/articles/incinerator.htm

- **OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION** provides safety oversight for disposal plant employees and enforces safety regulations regarding worker safety and health. www.osha.gov

- **THE HENRY L. STIMSON CENTER**, an independent, nonprofit, public-policy institute, seeks and promotes innovative solutions to security challenges facing the United States and other nations, with a special interest in chemical, nuclear and biological weapons. www.stimson.org

- **THE NATIONAL ACADEMY OF SCIENCES**, appointed by Congress, provides independent scientific and technical advice, provides program oversight through the National Research

Council and investigates program safety and performance. www.nas.edu

Two publications of interest can be found online:

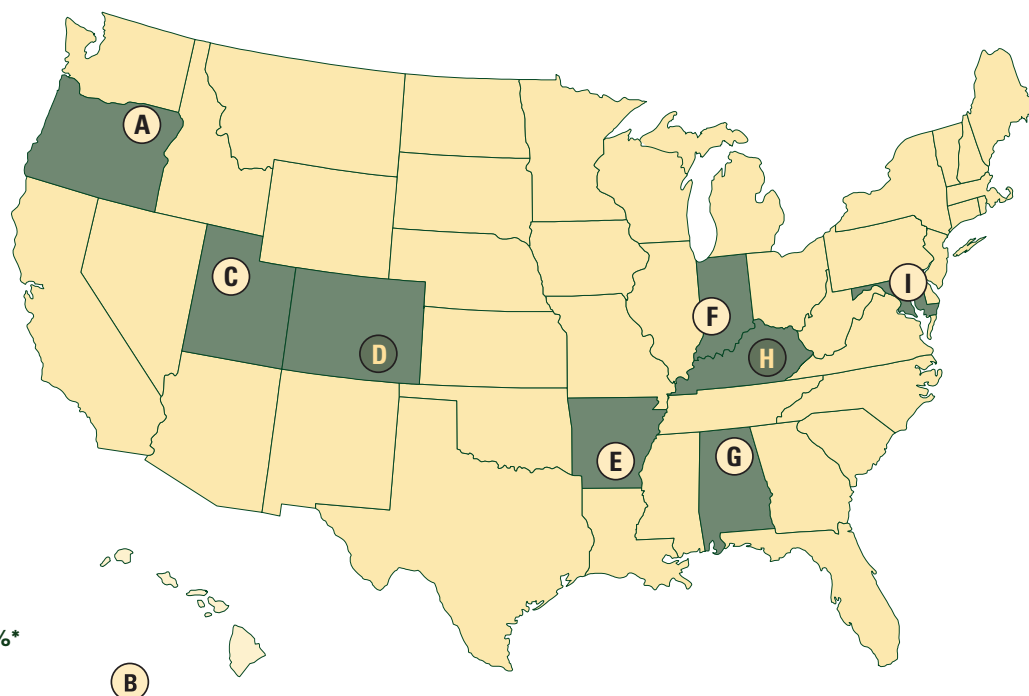
- "Evaluation of Chemical Events at Army Chemical Agent Disposal Facilities," (2002) is available at: www.nap.edu/catalog/10574.html
- "Effects of Degraded Agent and Munitions Anomalies on Chemical Stockpile Disposal Operations," (2004) is available at: www.nap.edu/catalog/10910.html



U.S. CHEMICAL WEAPONS STOCKPILE SITES

UNITED STATES WORKING TO DESTROY 31,500 TONS OF CHEMICAL AGENTS STOCKPILED ACROSS THE COUNTRY

- A** UMATILLA CHEMICAL DEPOT, ORE. **12%***
Technology: Incineration—began disposal 2004
- B** JOHNSTON ATOLL **6%***
Technology: Incineration—completed disposal 2000
- C** DESERET CHEMICAL DEPOT, UTAH **44%***
Technology: Incineration—began disposal 1996
- D** PUEBLO CHEMICAL DEPOT, COLO. **8%***
Technology: Neutralization—design/construction under way
- E** PINE BLUFF ARSENAL, ARK. **12%***
Technology: Incineration—began disposal 2005
- F** NEWPORT CHEMICAL DEPOT, IND. **4%***
Technology: Neutralization—began disposal 2005
- G** ANNISTON ARMY DEPOT, ALA. **7%***
Technology: Incineration—began disposal 2003
- H** BLUE GRASS ARMY DEPOT, KY. **2%***
Technology: Neutralization—design/construction under way
- I** ABERDEEN PROVING GROUND, MD. **5%***
Technology: Neutralization—completed disposal 2005



*Approximate percentage of original U.S. stockpile

● The Colorado and Kentucky chemical stockpile destruction programs are managed by the Department of Defense's Assembled Chemical Weapons Alternatives program.

CHEMICAL MATERIALS AGENCY REVIEW

DISPOSAL PROGRAM MARCHES FORWARD

The U.S. Army Chemical Materials Agency has made great strides toward its goal of eliminating chemical weapons nationwide.

"By the beginning of 2007, about 42 percent of the national stockpile—more than 13,000 tons of chemical agent and 1.7 million individual munitions and containers—has been destroyed at various stockpile sites," said Don Barclay, Army site project manager for the Umatilla Chemical Agent Disposal Facility.

The Chemical Materials Agency has operating destruction facilities in Oregon, Utah, Arkansas, Alabama and Indiana. Two

former sites have completed destruction operations: Johnston Atoll in the North Pacific Ocean and Aberdeen Chemical Agent Disposal Facility in Maryland. A separate agency under the Department of Defense, the Assembled Chemical Weapons Alternatives (ACWA) program, focuses on destroying chemical weapons stored at Blue Grass Army Depot in Kentucky and Pueblo Chemical Depot in Colorado.

Recent milestones:

- The disposal program surpassed the 40 percent mark in agent tonnage destroyed and the 50 percent mark in the

number of munitions destroyed in the national stockpile.

- The Army celebrated the final elimination of Umatilla's bombs, noting that the bombs represented the last of their kind in the national stockpile.
- The ACWA program began construction in 2006 of the destruction facility at Blue Grass Army Depot in Kentucky and continued construction begun in 2004 at Pueblo Chemical Depot in Colorado.

Barclay worked in the Army's chemical weapons

disposal program for eight years before moving with his family to Hermiston in April 2001.

"I'm especially pleased with the community support for destroying the stockpile," he said. "I'm also impressed with the abilities and dedication of our work force. Their families and friends live in this community, so our workers are just as concerned about seeing these weapons destroyed safely and as quickly as possible."

The Army uses two processes to destroy agents, incineration and neutralization. With incineration, furnaces treat the chemical agent

and munitions at 2,000 °F or higher to ensure total destruction. The neutralization process uses either hot water or sodium hydroxide and hot water to convert chemical agent into less hazardous byproducts that can be disposed of safely. The Chemical Materials Agency also develops alternative disposal technologies and disposes of recovered chemical warfare materiel.

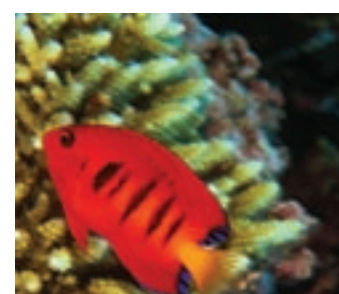
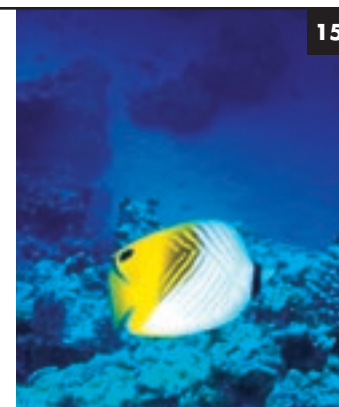
ON THE WEB

Chemical Materials Agency
www.cma.army.mil

Assembled Chemical Weapons Alternatives
www.pmacwa.army.mil



Crushed coral now caps the site of the Johnston Atoll Chemical Agent Disposal System.



JOHNSTON ATOLL REVISITED

FIRST CHEMICAL WEAPONS INCINERATOR FULFILLS MISSION

A commemorative plaque and a field of crushed coral mark the spot where the Johnston Atoll Chemical Agent Disposal System once stood.

On Nov. 5, 2003, on a tiny island 825 miles southwest of Hawaii, the Army, contractors and regulators celebrated a project that lived up to its vision in more ways than one. It was the nation's first full-scale facility built to destroy chemical weapons, the first to finish destroying its chemical weapons and first to restore the site where it had been located.

"Johnston Island built a great foundation for the entire program," said Don Barclay, the Army's Umatilla site project manager.

Beginning in 1990, workers destroyed 412,732

munitions and bulk containers of chemical agent, about 6 percent of the nation's stockpile. They finished chemical agent destruction on Nov. 29, 2000, and shortly thereafter began closing the facility to ensure the area would be safe upon departure. Activities were coordinated with the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service and the National Research Council.

In May 2003, after destroying waste items generated from disposal operations, the last furnace was shut down. Contractors demolished the facility and placed a crushed coral cap over the site.

"Closure activities at Johnston Atoll are especially important because they reflect the

entire lifecycle of a chemical weapons disposal plant and point to the Umatilla facility's ultimate future," Barclay said.

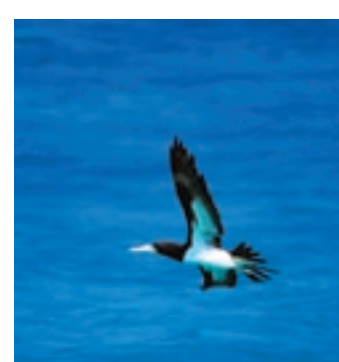
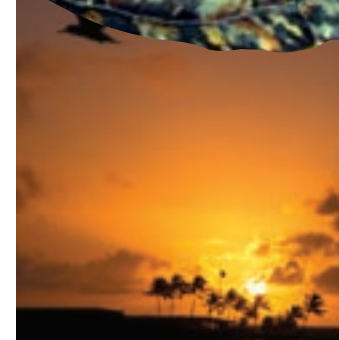
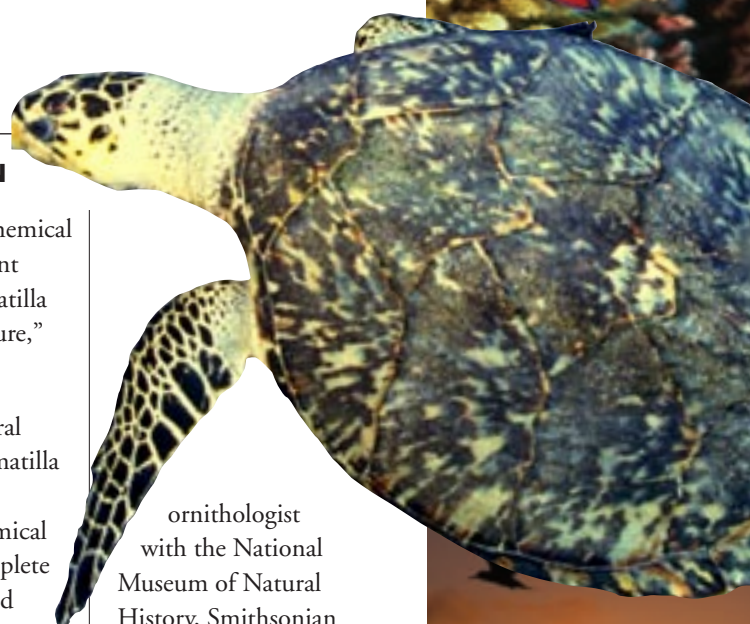
Under state and federal requirements, the Umatilla facility also will be dismantled after chemical agent disposal is complete and all waste is treated and sent to approved landfills.

Concern about preserving Johnston Atoll's ecosystem prompted the project's original planners to arrange for scientists to monitor the bird and marine life before, during and after disposal operations—a period of 20 years.

In their work, Dr. Phil Lobel, a professor of biology with the Boston University Marine Program, Marine Biological Laboratory, and Dr. Betty Anne Schreiber,

ornithologist with the National Museum of Natural History, Smithsonian Institution, found no adverse effect of the disposal project on the atoll's ecosystem.

Today, the wildlife and marine life are healthy, and Johnston Atoll provides an excellent example of how military operations can be compatible with an ecosystem. A 50-page report on the Johnston Atoll study is available by contacting the Outreach Office at (541) 564-9339.



WASHINGTON GROUP INTERNATIONAL

WASHINGTON GROUP INTERNATIONAL BY THE NUMBERS

Project employment Dec. 2006 700 Washington Group
..... 120 Southwest Research

Employees by residence 51 percent Washington
..... 49 percent Oregon

**Operations & Maintenance
payroll, first half of fiscal 2006** \$22.5 million

Subcontract awards for:

- Large businesses \$171.1 million
- Small businesses \$192.5 million
 - Small disadvantaged
businesses \$12.4 million
 - Women-owned businesses \$7.2 million

**Longest stretch without
a lost-time accident** 3 million man hours
Oct. 2001–Sept. 2003

**Umatilla project injury rate
Second half of 2006** 1.21
per 200,000 man hours

**Comparable rate for
all private industry** 5.0
per 200,000 man hours



To carry out its \$2 billion contract to build, test, operate and close the Umatilla Chemical Agent Disposal Facility, Washington Group International draws on a wealth of experience.

Project General Manager Doug Hamrick, a Tri-Cities, Wash., native, previously managed startup activities at the Anniston Chemical Agent Disposal Facility in Alabama and has extensive nuclear experience at Hanford, Wash., and Rocky Flats, Colo.

Overall, about 40 percent of Washington Group's staff has previous chemical weapons disposal or nuclear experience.

For more than 100 years, the Boise-based company's heritage companies—

Raytheon Engineers & Constructors, Morrison Knudsen and Westinghouse—have provided engineering, construction, operations and maintenance services to a range of business and government clients worldwide.

As the builder of Hoover Dam, the Trans-Alaska oil pipeline and NASA's Vehicle Assembly Building, Washington Group today is an environmental, engineering and construction company, employing about 25,000 people, with operations in more than 40 states and 30 countries.

Overall, Washington Group has ties to seven of the Army's nine chemical stockpile sites. Besides Umatilla and Johnston

Atoll, Washington Group operates the Anniston, Ala., and Pine Bluff, Ark., facilities.

In partnership with Bechtel International, Washington Group also holds contracts to design, build and operate chemical neutralization plants at Pueblo, Colo., and Richmond, Ky.

In Tooele, Utah, the company was responsible for building the Tooele Chemical Agent Disposal Facility, now in its 10th year of operation.



**Washington Group
International**

SOUTHWEST RESEARCH INSTITUTE

With a staff of about 120 employees, Southwest Research Institute continuously monitors the air in and around the Umatilla Chemical Agent Disposal Facility for the presence of chemical agents.

Southwest Research Institute is a not-for-profit, applied engineering and physical science research and development organization based in San Antonio, Texas. In the chemical demilitarization business since 1986,

Southwest Research Institute provided monitoring and laboratory services at Johnston Atoll and does similar work at the Pine Bluff Chemical Agent Disposal Facility in Arkansas.

Darrel Johnston, who managed the Johnston Atoll lab, fulfills the same role at Umatilla. People with chemistry backgrounds at the technician or chemist level fill many of the Umatilla jobs.



ON THE WEB

Washington Group
International
www.wgint.com

Southwest Research
Institute
www.swri.org

PROTECTING OREGON'S CLEAN ENVIRONMENT

MANY SAFEGUARDS HAVE BEEN BUILT INTO THE UMATILLA CHEMICAL AGENT DISPOSAL FACILITY TO ENSURE IT OPERATES SAFELY AND PROTECTS WORKERS, THE COMMUNITY AND THE ENVIRONMENT



Plant operator Shane McKeever stands near the Pollution Abatement System, which cleans incinerator emissions.



STACK EMISSIONS

After chemical agents are destroyed at extremely high temperatures, furnace emissions are cooled and thoroughly cleaned in the Pollution Abatement System. This process effectively scrubs air pollutants formed during incineration, ensuring that facility emissions meet or exceed state and federal clean air standards.

CARBON FILTRATION

To further reduce the possibility of an accidental chemical agent release through the stack, a carbon filter system has been added to the Umatilla disposal facility. This feature was

not included in earlier generations of chemical weapons incinerators. Testing shows carbon filters also further reduce air pollutants.

FACILITY AIR FILTERING

To ensure chemical agent inside the building does not escape, all air entering the disposal building is controlled and filtered before release to the environment.

WASTE DISPOSAL

Similar to many industrial processes, chemical weapons disposal produces waste byproducts such as scrap metal, brine solution and ash. Some waste will be

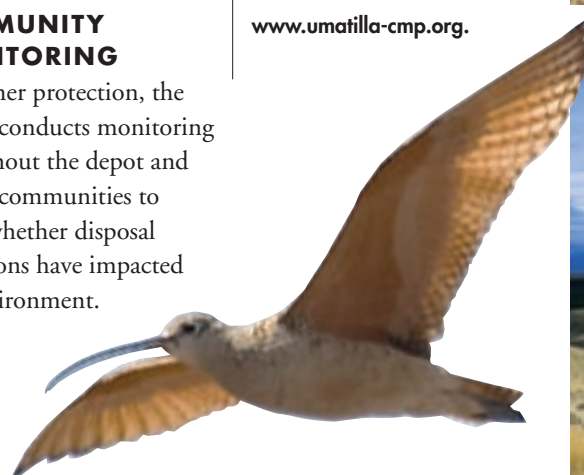
treated within the facility, with final disposal according to permit requirements. Other non-agent-related waste will be shipped to an approved hazardous waste landfill for disposal. Waste will be checked to ensure the agent has been destroyed.

COMMUNITY MONITORING

As further protection, the facility conducts monitoring throughout the depot and nearby communities to assess whether disposal operations have impacted the environment.

Testing was conducted prior to operations and will continue during and after operations. To provide a baseline, sampling of water, soil, plants, insects and small mammals began in April 1999; air sampling began in May 2000.

For more information, visit the Web site www.umatilla-cmp.org.





Community emergency responders train frequently to test new equipment and evaluate capabilities.

FOR MORE INFORMATION

UMATILLA COUNTY
EMERGENCY MANAGEMENT
(877) 367-2737
www.csepp.net

MORROW COUNTY
EMERGENCY MANAGEMENT
(541) 922-5262
www.csepp.net

OREGON
EMERGENCY MANAGEMENT
(541) 966-9640
www.oregon.gov/OOHS/OEM/csepp/csepp.shtml

BENTON COUNTY
EMERGENCY MANAGEMENT
(800) 841-7953
www.bces.wa.gov/csepp%20new.htm

WASHINGTON
EMERGENCY MANAGEMENT
(800) 562-6108
www.emd.wa.gov

FEDERAL
EMERGENCY MANAGEMENT
AGENCY
(541) 567-3652
www.fema.gov/government/grant/csepp.shtml

CHEMICAL STOCKPILE EMERGENCY PREPAREDNESS PROGRAM

Oregon and Washington communities near the Umatilla Chemical Depot stand on the leading edge in emergency preparedness, thanks to the Chemical Stockpile Emergency Preparedness Program (CSEPP).

Many agencies and dedicated personnel make up the local team: Federal Emergency Management Agency; Department of the Army; American Red Cross; Oregon and Washington states; Umatilla and Morrow counties, Ore.; Benton County, Wash.; and the Confederated Tribes

of the Umatilla Indian Reservation.

The goal of CSEPP is a ready public prepared to act in the unlikely event of a chemical emergency. Until the chemical stockpile is safely destroyed, CSEPP will continue to support efforts to ensure that communities have the knowledge and resources they need to keep themselves safe.

WHAT DO I DO IN A CHEMICAL EMERGENCY?

If you are within 10 miles of the Umatilla Chemical

Depot, you should immediately go inside and follow the emergency instructions for your area. The instructions will be broadcast on sirens, tone alert radios and local Emergency Alert System radio stations. Oregonians in Hermiston, Stanfield, Echo, Umatilla, Irrigon and Boardman will be advised to shelter in place.

This means to close doors and windows, turn off heating and air conditioning, enter and seal a room, and continue listening to your tone alert radio and/or

KUMA 107.7 FM for further information and instructions. Washington residents in Plymouth and Paterson will be advised to either listen for further instructions or evacuate.

Additional information and instructions will be broadcast on tone alert radios and KONA 105.3 FM or KONA 610 AM.



Your tone alert radio will provide emergency instructions and information.

PROGRAM MILESTONES

JANUARY 5, 2006—Depot's GB (sarin) ton containers eliminated.

JANUARY 10, 2006—Three furnaces (Deactivation, Metal Parts and Liquid) operated simultaneously processing rockets, bombs and liquid agent for the first time. (A)

MARCH 29, 2006—Umatilla Site Project Manager Don Barclay receives Department of the Army Decoration for Exceptional Civilian Service Award.

JUNE 8, 2006—The federal Occupational Safety and Health Administration recommends Washington Group and the Umatilla Chemical Agent Disposal Facility for Voluntary Protection Programs status, an official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health.

JUNE 9, 2006—Final sarin bomb eliminated.

AUGUST 9, 2006—Final sarin rocket eliminated. (B)

SEPTEMBER 28, 2006—First 8-inch sarin projectile eliminated.

NOVEMBER 6, 2006—100,000th munition processed.

NOVEMBER 9, 2006—Depot combines all chemical munitions into one storage area to enhance safety and security and streamline deliveries to the disposal facility. (C)

NOVEMBER 30, 2006—4,000th On-Site Container delivered to Umatilla disposal facility.

JANUARY 3, 2007—Last 8-inch sarin projectile eliminated. (D)



MOVING FORWARD TOGETHER

In March 1996, the U.S. Army Chemical Materials Agency opened a downtown office in Hermiston as a way to provide information about the disposal of chemical weapons.

Located at 190 E. Main St., the Umatilla Chemical Disposal Outreach Office employs information specialists who answer questions from walk-in visitors and field phone calls from around the community and country.

The office houses a model of the disposal facility, models of munitions stored at the depot, a display of simulated chemical agent, a public-access Internet station and emergency preparedness materials. The office displays more than 500 information sources, including documents, fact sheets, photos and videos.

CALL OR VISIT THE OUTREACH OFFICE TO:

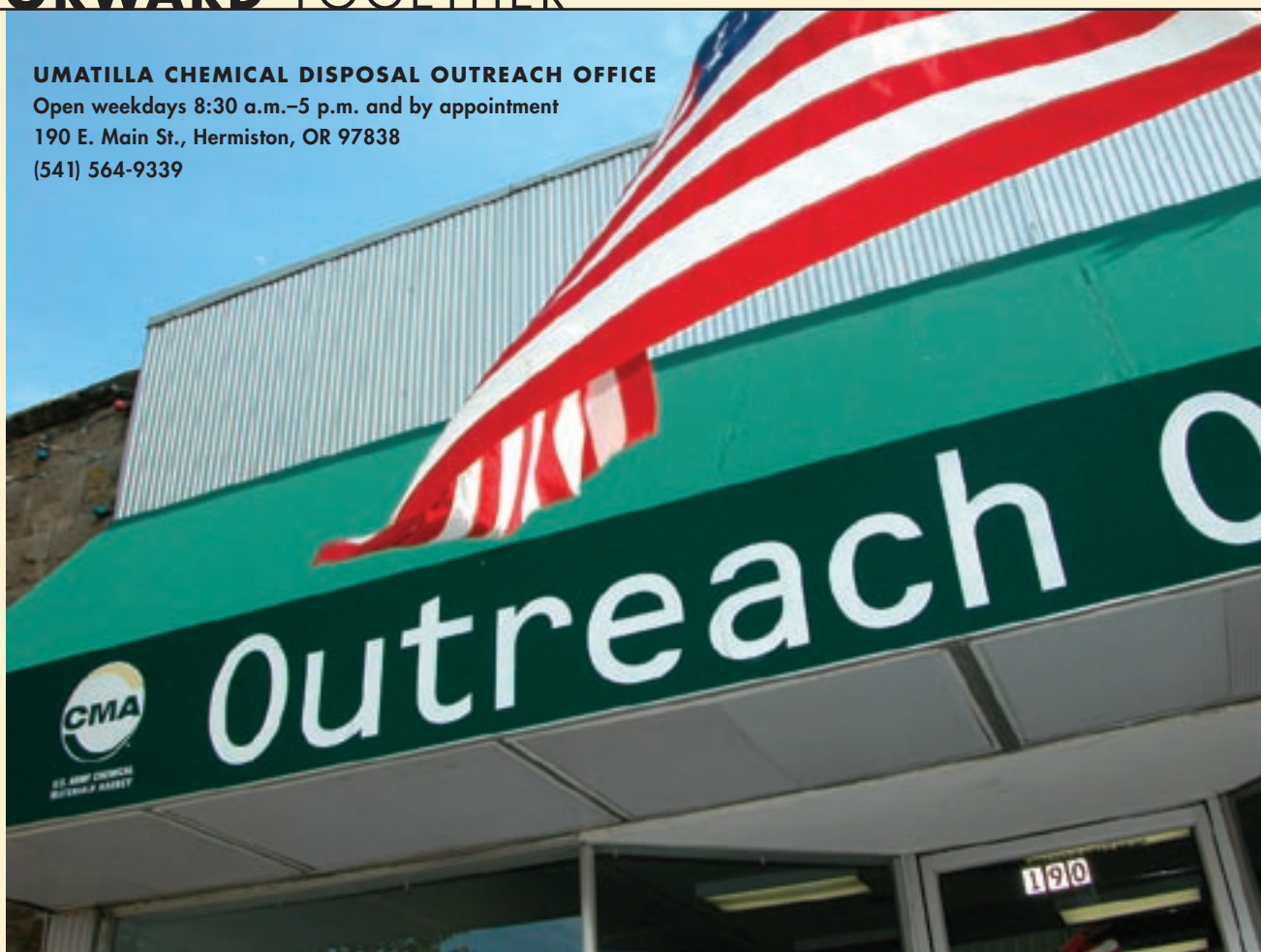
- Arrange a speaker for your club, class, community event or company safety committee meeting.
- Request an information packet for yourself, family, friends or coworkers.
- Learn more about public involvement opportunities.

UMATILLA CHEMICAL DISPOSAL OUTREACH OFFICE

Open weekdays 8:30 a.m.–5 p.m. and by appointment

190 E. Main St., Hermiston, OR 97838

(541) 564-9339



Ralph DeBoer of Hermiston, who helped build the Umatilla Chemical Depot in the 1940s, visits the Umatilla Outreach Office.



Outreach specialist David Nahol makes neighborhood visits to update the community on chemical weapons storage and disposal.

